

REMARKS/ARGUMENTS

Applicants respectfully request reconsideration of this application. Claims 1-8 and 21-28 remain in the application. Of these, claims 1, 3-8, 21, and 23-28 stand rejected; and claims 2 and 22 stand withdrawn.

1. Rejection of Claims 1 and 21 Under 35 USC 102(b)

Claims 1 and 21 stand rejected under 35 USC 102(b) as being anticipated by Tatsuya Tominaga (Japanese Patent No. JP401245547A; hereinafter "Tominaga").

In rejecting these claims, the Examiner reads out the steps of depositing and thermally decomposing a sacrificial material because, in the Examiner's opinion, these steps do not impart any structural limitations on the end product - i.e., a circuit trace crossing over a circuit component to form an air bridge. However, applicants believe the Examiner is construing MPEP §2113 and §2173.05(p) too broadly. That is, the "distinctive structural characteristic" that a manufacturing process step needs to impart to a final product for the final product to distinguish over the prior art can be small.

MPEP §2113 states, in part:

The structure implied by the process steps should be considered when assessing the patentability of product-by-process claims over the prior art, especially where the product can only be defined by the process steps by which the product is made, or where the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product. See, e.g., *In re Garner*, 412 F.2d 276, 279, 162 USPQ 221, 223 (CCPA 1979) (holding "interbonded by interfusion" to limit structure of the claimed composite and noting that terms such as "welded," "intermixed," "ground in place," "press fitted," and "etched" are capable of construction as structural limitations.).

Of note, MPEP 2113 mentions that the term "etched" is capable of imparting a structural limitation. Yet, etching is just a means to remove (and not add) material. Furthermore, etching is just one of a plurality of ways to remove material.

If "etching" has been found to impart a structural limitation, applicants would guess this is so because of the degree of precision with which "etching" removes material to form a "final product". In a similar manner, applicants' deposition and thermal decomposition of a "sacrificial material" to form an air bridge imparts a certain degree of precision to a resultant air bridge.

Turning now to Tominaga, the English summary of Tominaga's teachings indicates that Tominaga discloses "a power supply wiring 4" crossing over a "wiring 2", thereby forming a "space 3" therebetween. The English summary of Tominaga's teachings provides absolutely no indication of how the "space 3" or "wiring 4" is formed. In applicants' claims 1 and 21, a "crossover circuit trace" is formed by depositing the crossover circuit trace over a sacrificial material such that the crossover circuit trace "conforms to" the sacrificial material. The sacrificial material is then thermally decomposed. In this manner, applicants can precisely define the cross-section of an air bridge. Based on the English summary of Tominaga's teachings, the degree of precision with which Tominaga may define an air bridge is unknown, and it is merely speculation that Tominaga can achieve the same degree of precision offered by applicants' air bridge production process.

Similarly to the structural limitations that the court indicated were implied by the *Garnero* process, applicants believe the structural limitations implied by their own process distinguish their "product" from Tominaga's product. Applicants' claims 1 and 21 are therefore believed to be allowable over Tominaga's teachings.

If applicants' claim 1 is allowed, applicants request the reinstatement and allowance of their claim 2 (which depends from their claim 1, but which stands withdrawn as being drawn to a non-examined species).

2. Rejection of Claims 1, 3, 4, 21, 23 and 24 Under 35 USC 102(b)

Claims 1, 3, 4, 21, 23 and 24 stand rejected under 35 USC 102(b) as being anticipated by Burns (US Patent No. 3,729,816).

Again, the Examiner seems to downplay the product-by-process limitations of applicants' claims 1 and 21.

In applicants' claim 1, a sacrificial material is thermally decomposed to leave a "crossover circuit trace" crossing over "one or more circuit components". Although Burns teaches a "crossover member 16" that spans a conductive element 13, Burns also teaches that the crossover member 16 is formed on a "carrier member 20" and then transferred to and bonded to conductive elements 12 and 14 on either side of the conductive element 13 which is spanned by the crossover member 16. See, Burns, col. 2, lines 51-63. In applicants' claims 1 and 21, a "crossover circuit trace" is formed by depositing the crossover circuit trace over a sacrificial material such that the crossover circuit trace conforms to the sacrificial material. The sacrificial material is then thermally decomposed. In this manner, applicants can precisely define the placement and cross-section of an air bridge. Although Burns' teachings imply some degree of precision for the formation of the crossover member 16, the extra steps to transfer the crossover member 16 from the carrier member 20 to the dielectric substrate 11, and to bond the crossover member 16 to the conductive elements 12 and 14, appear to present alignment, bonding and other tolerance issues which are mitigated or eliminated in applicants' claimed products.

Similarly to the structural limitations that the court indicated were implied by the *Garnero* process, applicants believe the structural limitations (e.g., tolerances) implied by their own process distinguish their "product" from Burns' product. Applicants' claims 1 and 21 are therefore believed to be allowable over Burns' teachings. Applicants' claims 3, 4, 23 and 24 are believed to be allowable at least for the reason that they depend from claim 1 or 21.

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If applicants' claim 1 is allowed, applicants request the reinstatement and allowance of their claim 2 (which depends from their claim 1, but which stands withdrawn as being drawn to a non-examined species).

3. Rejection of Claims 5-8 and 25-28 Under 35 USC 103(a)

Claims 5-8 and 25-28 stand rejected under 35 USC 103(a) as being unpatentable over Burns, as applied to claims 1 and 21 above, in view of Middlehurst et. al. (US Pat. No. 6,604,967; hereinafter "Middlehurst") and Leigh et. al. (US Pat. No. 5,986,893; hereinafter "Leigh").

Applicants believe claims 5-8 and 25-28 are allowable at least for the reason that they depend from claim 1 or 21, and because Middlehurst and Leigh fail to disclose the limitations of parent claims 1 and 21 (see previous argument, *supra*).

4. Conclusion

Given the above Amendment and Remarks, applicants respectfully request the issuance of a Notice of Allowance.

Respectfully submitted,
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